

The Dobkin Technique

This simple procedure utilises an automatic reflex which can avert brain damage and help save the lives of heart-attack and suffocation victims.

by Jeffrey W. Dobkin

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While current medical methods cannot entirely prevent heart attacks, there is an emergency procedure that can save lives. This simple technique can reduce or avert the possibility of brain damage and brain death for up to an hour or more. If this procedure saves one life, it is fully worth all the time and effort I have spent in research.

The Dobkin Technique seeks to prevent the irreversible brain damage thought to occur, in the event of traumatic accident, when no oxygen reaches the brain after four minutes.¹ It is a time-buying procedure for saving the lives of heart-attack victims and victims of suffocation, drowning, respiratory failure and drug overdose. Perhaps it will help even SIDS (cot death) and stroke victims until the arrival of proper medical equipment and personnel. The Technique can be applied by a child or may be self-administered in almost any home. It takes less than 30 seconds to initiate and the results are as immediate.² It works on both conscious and unconscious victims. The procedure can be easily explained over the phone.

The *Canadian Medical Association Journal* documented a case of cold-water drowning, where a boy, after half an hour of complete submersion, was resuscitated and, with proper medical treatment, experienced no lasting side-effects. He had no cerebral damage, despite his brain having received no oxygen for over half an hour.³

Research has provided additional case studies of extended cold-water submersion with no brain damage to resuscitated victims: article after article, story after story, of people deprived of oxygen for up to an hour—with no ill-effects or brain damage. What is it that protects the brain from damage in cases of oxygen deprivation over the four-minute limit? Can this be applied as a life-saving technique to heart-attack victims?

In all vertebrates there is an automatic reflex called the "mammalian diving reflex". It occurs naturally as a life-preserving mechanism during cold-water submersion. More commonly called the "diving reflex", it is a protective, oxygen-conserving reflex to keep brain and body alive in the event of submergence in cold water. The body prepares itself to sustain life. It is a totally natural, protective mechanism.

Natural engagement of the diving reflex is what has enabled drowning victims to be revived successfully after as long as an hour of cold-water submersion, with little to no ill-effects. The Dobkin Technique seeks to trigger this reflex in a crisis. The Technique may never replace cardiopulmonary resuscitation (CPR), but its purpose is not to compete with CPR but to help the thousands of victims of heart attack or suffocation who are in life-or-death situations but nowhere near any people trained in CPR.

If you are not skilful in CPR and you live in the country where an ambulance is twenty minutes away, if someone close to you has a heart attack, the options are frightening. Without initiating the Dobkin Technique, a person whose heart stops has only four minutes until irreversible brain damage starts to set in. The Technique may work in conjunction with CPR to save lives, but there is also the possibility that it may not work at all. But the fact that it just may work makes it worth closer study. In the light of no other available remedy, it could be put into practice in an emergency. What would you choose if you lived in the country and had a heart attack?

The Dobkin Technique is simple and easy to initiate. In natural surroundings, the diving reflex is triggered if you fall into water with a temperature of 58 degrees Fahrenheit (approx. 14 degrees Celsius)—the mean temperature of the world's waters—or colder. But this reflex may also be triggered by just a facial immersion in cold water, at 58°F (14°C) or colder). The Technique involves application of cold water, wet towels or wet ice-packs to the victim's head to trigger the diving reflex in the event of heart or respiratory failure. This procedure starts the oxygen-conserving mammalian diving reflex. Here is what happens:

Bradycardia can start within as quickly as four seconds, or can take up to 30 seconds depending on what part of the breath cycle the person is in when cold water is applied to the face. In man, cold-water facial immersion usually induces a 15-30 per cent decrease in

heart rate from normal resting values. The reflex is strong enough to override other seemingly vital reflexes. It can completely obliterate the tachycardia that accompanies moderately severe exercise on an exercise bicycle, and abruptly reduce the heart rate from 130-140 beats per minute to 80 or less, despite continuation of the exercise.⁴ Bradycardia is initiated by parasympathetic vagal activity.

Skin and muscle blood-flow decrease through a powerful constriction of peripheral arteries. Peripheral vaso-constriction brought about by sympathetic activity maintains blood pressure. At the same time, systemic arterial pressure, especially diastolic, is increased. This lower heart rate and redistribution of central blood flow is to support the more necessary life-preserving organs.

The reflex triggers anaerobic metabolism, shown by a fall in arterial pH. There is an increase in concentration of lactic and other organic acids and a rise in carbon dioxide and potassium levels in the blood. This indicates that the body cells are using less oxygen.

In a study by Wolf, Schneider and Groover,⁵ arterial oxygen saturation was found to fall very little during immersion when the reflex was triggered. Because arterial oxygen saturation falls very little, the term "oxygen-conserving" is appropriate for the reflex. Accentuation of the reflex to the greatest degree occurs when the facial immersion in cold water is accompanied by fear. The more fearful the condition, the stronger the trigger to bring about the reflex and the greater the chance that a strong oxygen-conserving reflex will take place.

In patients resuscitated by the team of a special ambulance service run by the Department of Anaesthesia at Ullevål Hospital, Sweden (from an article entitled "Resuscitation of Drowning Victims"), the most successful outcome was observed in those with cardiac arrest following drowning.

A specialist in drowning, Dr Martin J. Nemiroff (Michigan University Medical Center), suggested in an article in *Newsweek* that the involuntary diving reflex saves lives of drowning victims by delaying suffocation—by shunting oxygen from the extremities and sending it toward the heart, brain and lungs—and thus reducing the possibility of brain damage and death.⁶ A photo in the *Newsweek* article showed Dr Nemiroff with Brian Cunningham who had been revived after 38 minutes under water. Dr Nemiroff has successfully revived numerous victims of cold-water drowning who were pronounced dead, having being submerged for 30 minutes or more.⁷ What saved the victims was the automatic activation of the mammalian diving reflex and the coldness of the water.

In a *Scientific American* study, in a discussion of the human body's ability to resist drowning, it is stated that the diving reflex and cold water reduce the oxygen demand of tissues, extending the period of survival *without external oxygen* to as long as one hour. Previously, irreversible brain damage was thought to occur after four minutes without oxygen.⁸

The diving reflex is currently used by the medical profession in conversion of paroxysmal atrial tachycardia.^{9,10,11}

It is my conclusion that if the diving reflex can save the lives of drowning victims by averting brain damage, then the Dobkin Technique, by triggering this reflex, should avert brain damage in heart-attack victims.

The Dobkin Technique involves applying cold water, ice-packs or cold, wet towels to the patient's face and eyes, in a tub or basin of cold water, being careful to leave the nose and mouth clear for breathing. The temperature of the water must be at least 58°F (approx. 14°C) or colder. Since the Technique produces an almost instant con-

version to normal sinus rhythm and is not invasive, the use of the diving reflex is recommended by many authors and cited as a safe, effective treatment. In one study, nine out of 10 patients converted in 15 to 38 seconds, with an average of 23 seconds.¹² Its use is also the treatment of choice for converting a supraventricular tachycardia in children and infants, in whom the diving reflex effect is most pronounced.

In 1992, I received a reply back from Dr Linus Pauling (since deceased), in which he surmised there are two ways in which damage to the brain might be prevented for some time, should the oxygen supply to the blood be stopped:¹³

"The brain can tolerate a certain amount of decrease in the partial pressure of oxygen supplied by the blood. If the circulation of the blood to the brain and to the tissues continues at its normal rate, the oxygen is used up rather fast, most of it (75%) by tissues other than the brain. Accordingly, the induction of bradycardia, delaying the rate at which oxygen is brought to the tissues by the blood, would conserve the supply of oxygen and permit anoxic damage to be delayed by a considerable amount.

"There is a second way of delaying brain damage by anoxia. This way is to cool the brain. The biochemical reactions involved in anoxic damage have a high temperature coefficient, so that cooling the brain by a few degrees can slow down the rate at which anoxic damage occurs to perhaps one-tenth of its rate."

Dr Pauling suggested in his letter that ice or cold water also be applied to the neck, so that the blood can be cooled and the brain itself can be cooled in the region where anoxic damage occurs. I concur with Dr Pauling and recommend that, after the patient's face is immersed in cold water or ice-packs, cold water be applied to the neck and the base of the hairline at the back of the head.

After countless hours of research, I am convinced that the Dobkin Technique will save lives. It should be a known, life-saving procedure which can be used in the event of any oxygen deprivation to the brain. It is a fast, easy-to-apply, non-invasive technique that can be explained over the telephone, be self-administered, or be applied by a friend or child with no training. And while it will not stop heart attacks from happening, it will buy precious moments—when time is of the essence—until proper medical equipment and personnel can arrive.

This natural, life-conserving, automatic reflex—which is Nature's own way of protecting us—is common enough to be found in all mammals, and powerful enough to save someone's life in a traumatic moment. Further investigation and clinical evaluation may be necessary but, from the empirical evidence I have uncovered, I recommend this reflex be initiated in time of emergent need.

I hope this article will act as a catalyst to spur new research, and I welcome readers' comments. My only request is that I'd like my name assigned to the technique (after all, Heimlich has his manoeuvre). My goal? I hope at least one life can be saved. ∞

Endnotes

¹ *Scientific American*, August 1977, p. 57.

² Wolf, S., R. A. Schneider, M. E. Groover, "Further Studies on the Circulatory and Metabolic Alterations of the Oxygen-Conserving (Diving) Reflex in Man", The Neurocardiology Research Program, Department of Medicine, University of Oklahoma Medical Center, presented before the American Clinical and Climatological Association, Colorado Springs, Colorado, USA, 21 October 1964.

³ Hunt, P. K., "Effect and Treatment of the Diving Reflex", *Canadian Medical Association Journal*, no. 111, 21 December 1974.

⁴ Atkins, J., S. Leshin, C. Skelton, K. Widenthal, "The Diving Reflex Used to Treat Paroxysmal Atrial Tachycardia", *The Lancet*, 4 January 1975, p. 12.

⁵ Wolf, et al., *ibid.*

⁶ *Newsweek*, 22 August 1977, p. 79.

⁷ *The New York Times*, 7 August 1977, p. 20.

⁸ *Scientific American*, *ibid.*

⁹ *Newsweek*, 13 January 1975, p. 50.

¹⁰ Landsberg, P. G., "Bradycardia During Human Diving", *South African Medical Journal*, 5 April 1975, pp. 626-630.

¹¹ Wayne, M. A., "Conversion of Paroxysmal Atrial Tachycardia by Facial Immersion in Ice Water", *Journal of the American College of Emergency Physicians*, 6 May 1976.

¹² Whitman, V., "The Diving Reflex in Termination of Supraventricular Tachycardia in Childhood" (Letter to the Editor), *Journal of the American College of Emergency Physicians*, December 1976.

¹³ Letter from Dr Linus Pauling to the author, 2 September 1992.